

in homozygous sickle cell disease (SS) and 5.5 percent in SC/S- $\beta$ -thalassemia disease. The numbers of patients were 26 and 19, respectively. The difference in frequency between the two groups is not statistically significant ( $P>0.05$ ). Yet the authors state that patients with Hb SC and Hb S- $\beta$ -thalassemia only should arrange in advance for inflight oxygen. They add: "We believe that adult patients with Hb SS do not need supplemental oxygen unless they are among the 6 percent of adult patients with Hb SS and intact spleens." Admittedly, there are fewer instances of splenic crises in SS disease (4.3 percent as compared with 8 percent in other forms), but it is not splenic crises only that we need to or can prevent by supplemental oxygen. The 6.5 percent of patients with Hb SS who do suffer vasoocclusive crises could benefit from inflight oxygen.

The authors also found that whereas 42.9 percent of SS patients in Reno (elevation 4,400 ft) suffered vasoocclusive crises, only 31 percent of SS patients in Lake Tahoe (elevation 6,320 ft) had similar complications. This difference is significant ( $P<0.05$ ). Watson-Williams also noted this in his critique of the paper,<sup>2</sup> but neither he nor the original authors could provide an explanation for this seeming contradiction. In fact, there is no contradiction. Among other things, the sickling process of deoxyHb S is allosterically modified by pH and 2,3-diphosphoglycerate (2,3-DPG). Lowering the pH hastens sickling by decreasing the oxygen affinity of Hb S via the Bohr effect. In contrast, 2,3-DPG has no independent effect on the polymerization of Hb S. Instead it alters pH, which in turn enhances polymerization.<sup>3</sup> It follows, therefore, that if the pH effect of 2,3-DPG is annulled by respiratory alkalosis, which occurs to a greater degree at 6,300 ft than 4,400 ft, it cannot influence polymerization of Hb S. While this phenomenon cannot adequately explain the reduced frequency of crises in patients from Denver when they are exposed to high altitudes,<sup>4</sup> a comparison of the two studies done so far on the subject<sup>1,4</sup> cannot be made since one recorded the frequency of vasoocclusive *events*<sup>1</sup> and the other recorded the number of *patients* who developed similar symptoms.<sup>4</sup> In any event, this is one of the more intriguing findings in Claster and associates' study and deserves future investigation.

PREETHAM KONDLAPOODI, MD  
Department of Pathology  
Harlem Hospital Center of College of  
Physicians and Surgeons of  
Columbia University  
New York City

## REFERENCES

1. Claster S, Godwin MJ, Embury SH: Risk of altitude exposure in sickle cell disease. *West J Med* Nov 1981; 135:364-367
2. Watson-Williams JE: Altitude exposure in sickle cell disease. *West J Med* Feb 1982; 136:168-169
3. Swerdlow PH, Bryan RA, Bertles JF, et al: Effect of 2,3 diphosphoglycerate on the solubility of deoxy-sickle hemoglobin. *Hemoglobin* 1977; 1:527-537
4. Mahony BS, Githens JH: Sickling crises and altitude—Occurrence in the Colorado patient population. *Clin Pediatr* 1979; 18:431-438

## Diagnosis of Testicular Torsion

TO THE EDITOR: Two important caveats should be added to Marshall's excellent, though necessarily brief, review of progress in the diagnosis of testicular torsion.<sup>1</sup> One is that use of a Doppler ultrasonic stethoscope must include compression of the ipsilateral spermatic cord with abolition of pulsations to assure that blood flow through the testicular artery and not inflamed scrotal skin is being tested.<sup>2</sup>

Another caution to practitioners would be that pyuria, while unusual, may accompany torsion.<sup>3,4</sup> Increasing numbers of white cells make torsion less and less likely, but there is no specific dividing line, making consideration of all clinical features, appropriate use of noninvasive tests and early exploration necessary for achieving higher testicular salvage rates.

BRUCE HAYNES, MD  
Department of Emergency Medicine  
Harbor-UCLA Medical Center  
Torrance, California

## REFERENCES

1. Marshall S: Laboratory aids in the diagnosis of testicular torsion. *In* Important advances in clinical medicine: Epitomes of progress—Pediatrics. *West J Med* 1982 Apr; 136:328-329
2. Rodriguez DD, Rodriguez WC, Rivera JJ, et al: Doppler ultrasound versus testicular scanning in the evaluation of the acute scrotum. *J Urol* 1981 Mar; 125:343-346
3. Stage KH, Schoenvogel R, Lewis S: Testicular scanning: Clinical experience with 72 patients. *J Urol* 1981 Mar; 125:334-337
4. Abu-Sleiman R, Ho JE, Gregory JG: Scrotal scanning: Present value and limits of interpretation. *Urology* 1979 Mar; 13:326-330

## Holistic Medicine: Advances and Shortcomings

TO THE EDITOR: In "Holistic Medicine: Advances and Shortcomings" in the June issue<sup>1</sup> of the journal, Dr. James S. Gordon's definition of holistic medicine reads very well. However, I would point out that he analyses only an incomplete concept of holistic medicine. One of the references in his paper is to Jerome Frank, professor of psychiatry and behavioral sciences at Johns Hopkins. In a later article, Dr. Frank<sup>2</sup> analyses the three divisions of holistic medicine: the exotic, the supernatural and the naturalistic.